

REMARKS/ARGUMENTS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

This Amendment is in response to the Office Action mailed on April 9, 2004. Claims 1-6, 8, 10, 11, 13-30, 32-60, 63-70, and 72-80 are pending in the present application. Claims 26, 27, 32-34, 38, 41, 45-48, 68, and 79 stand rejected. Claims 1-6, 8, 10, 11, 13-25, 50-60, 63, 65-67, 69, 70, 72-78, and 80 have been allowed and Claims 28-30, 35-37, 39, 40, 42-44, 49, and 64 have been objected to as being dependent upon rejected base claims, but would be allowed if rewritten in independent form. The indication of allowable subject matter is noted with appreciation. Claims 8, 68, and 70 are amended by the present Amendment.

In the outstanding Office Action, the drawings and the specification were objected to. Claim 68 was rejected under 35 U.S.C. § 112, second paragraph, as indefinite. Claims 26 and 48 were rejected under 35 U.S.C. § 103(a) as unpatentable over Holzhauser (U.S. Patent No. 4,593,995, hereinafter "Holzhauser") in view of Hamanaka et al. (JP 361140423A, hereinafter "Hamanaka"), Raj (U.S. Patent No. 5,710,958, hereinafter "Raj"), and Nukada (U.S. Patent No. 6,336,021, hereinafter "Nukada"). Claims 27, 32-34, 38, 41, and 45 were rejected under 35 U.S.C. § 103(a) as unpatentable over Holzhauser as modified by Hamanaka, Raj, and Nukada, as applied to Claims 26 and 48, and further in view of Nakamura (JP 403123364A, hereinafter "Nakamura"). Claim 46 was rejected under 35 U.S.C. § 103(a) as unpatentable over Holzhauser as modified by Hamanaka, Raj, and Nukada, as applied to Claims 26 and 48, and further in view of Nakashima et al. (U.S. Patent No. 6,308,034, herein "Nakashima"). Claim 47 was rejected under 35 U.S.C. § 103(a) as unpatentable over Holzhauser as modified by Hamanaka, Raj, and Nukada, as applied to Claims 26 and 48, and further in view of Mochizuki et al. (JP 359077448A, herein

“Mochizuki”). Claim 79 was rejected under 35 U.S.C. § 103(a) as unpatentable over Holzhauser as modified by Raj, and Nukada.

Applicants thank the Examiner for the courtesy of an interview extended to Applicants' representative on May 11, 2004. During the interview, arguments as hereinafter developed were presented to discuss the outstanding objection to the figures and the obviousness rejection of Claim 26. Applicants' representative argued that the motivation to combine Holzhauser, Hamanaka, Raj, and Nukada was not supported by "substantial evidence" within the record, and by "clear and particular" evidence of a suggestion or motivation to combine the teachings of the above references. As discussed during the interview, there is no substantial evidence, nor clear and particular evidence, within the record of a motivation for modifying the Holzhauser's device by incorporating the movable branching body 13 of Hamanaka nor the wet electrophotographic processes of Raj or Nukada. It was further argued that, without such motivation and absent improper hindsight reconstruction, a person of ordinary skill in the art would not be motivated to perform the proposed modification.

A partial agreement was reached during the personal interview. Examiner Susan Lee indicated on the interview summary (form PTOL-413) that “Mr. McQuay discussed the drawing objections. Examiner agreed that features of the jetting charged toner and adhering a thin layer of magnetic toner are in the figures and the objections to these two features would be withdrawn. However, the jetting charged ink droplets are not shown in the figures. Also, claim 26 was discussed with the motivation to combine. No agreement was made on claim 26.”

Regarding the objection to the specification, Applicants brought to the attention of the Examiner that the Amendment filed on December 24, 2003 had already correct the cited informalities in Applicants' specification. The Examiner confirmed that the objected items

had already been corrected in the Office's electronic version of the Amendment filed on December 24, 2003. Accordingly, it is respectfully requested that this objection be reconsidered.

Regarding the objection to the drawings, as summarized hereinabove, during the interview it was agreed that the claimed features of a jetting charged toner and an adhering of a thin layer of magnetic toner were properly represented in the figures. Applicants have removed the recitation of jetting charged droplets from Claims 8 and 70, thus making moot the objection to Applicants' drawings.

Regarding the rejection of Claim 68 under 35 U.S.C. §112, second paragraph, for being indefinite, Applicants respectfully submit that the present amendment to Claim 68 has overcome this rejection and respectfully request its withdrawal.

Turning now to the outstanding obviousness rejection of independent Claims 26 and 79, Applicants respectfully submit that, as to Claim 26, Holzhauser, Hamanaka, Raj, and Nukada, and, as to Claim 79, Holzhauser, Raj, and Nukada, individually or in any combination thereof, do not support a *prima facie* case of obviousness of the inventions recited in these claims. This is so at least because one of ordinary skill in the art would not be motivated to combine and modify the cited references as purported in the outstanding Office Action. The asserted combinations and modifications have been proposed with disregard to the structural compatibility of the cited references and with disregard to the fact that the asserted combination and modification would change the principle of operation and/or make the individual prior art inventions unsatisfactory for their intended use.

The structure and operation of Holzhauser has been summarized in the outstanding Office Action with respect to FIG. 1 and col. 4, lines 5-32 of that reference. It is acknowledged that Holzhauser does not disclose a branched nail, a conveyance roller, and a liquid developing agent containing toner dispersed in liquid solvent. Hamanaka has been

cited for disclosing an inversed triangular movable branching body 13, which has been asserted as reading on the branched nail recited in Claim 26. Raj has been cited for disclosing an electrophotographic printing process that uses either a dry or liquid marking material and Nukada has been cited for disclosing a wet electrophotographic apparatus.

According to features of the inventions as set forth in Claims 26 and 79, a fast duplex printing mechanism is recited that can be combined with a wet electrophotographic mechanism even in the absence of a fixing mechanism for heating and fixing the toner on the paper. As explained in Applicants' specification, although a wet electrophotographic process is more economical than a electrophotographic process because less energy is required to fix the toner onto the paper, a wet electrophotographic process still often requires a similar fixing mechanism, but one which requires less energy than that used in the dry process, for heating and fixing the toner on the paper if fast printing is to be achieved. However, for the invention according to Claims 26 and 79, even though the duplex printing is fast, a fixing mechanism is not required. As a result, besides the reduction in energy consumption, the cost associated with the fixing mechanism can also be saved while maintaining high-speed printing.

Although Nukada (col. 1, lines 21-33) mentions some of the advantages of a wet electrophotographic apparatus, it fails to suggest anything about the durability of the image in that wet electrophotographic apparatus against stress capable of damaging the image if it were for a dry process without a fixing mechanism in high-speed duplex printing.

Wet electrophotographic processes are characterized by toner particles, which are a mixture of a pigment, a charge control agent, and a resin, swelled and suspended in an insulating solvent to develop the electrostatic latent image on the photosensitive body through electrophoresis. The toner particles are well preserved by the solvent that surrounds the toner particles, and normally, the toner particles themselves do not easily come in contact with each other in the solvent. When the toner particles are transferred onto paper, the fibers in the

paper absorb the solvent to remove the solvent, thus preventing the contact between toner particles. The tackiness or viscosity of the resin that has been swelled in the solvent increases the adhesiveness between the toner particles as well as between the toner particles and the paper. As a result, in contrast to the dry electrophotographic process, the toner particles can be fixed on the paper to some extent by just being transferred onto the paper. In reality, it is not easy for the paper to absorb the solvent around the toner particles completely, and heating for fixing the toner on the paper may be required just as in the dry electrophotographic process, if a certain speed for printing is required. Unless the solvent is dried sufficiently, the toner particles cannot be completely fixed.

However, in a duplex printing according to the present invention, the feeding roller and the surface of the paper move at a uniform speed when the paper is reversed, and the stress caused in reversing the paper is not large enough to damage the image on the paper. That is, the adhesiveness achieved by the absorption of the solvent is strong enough to endure the stress.

Dry electrophotographic processes are characterized by toner particles, including a pigment and a resin, that have comparatively high binding ability and flowability so that the toner particles can be easily conveyed and preserved. The toner particles used in a dry electrophotographic process thus have a comparatively low adhesiveness to paper. Consequently, for the toner particles to be properly fixed onto the paper, the resin in the toner particles must be heated enough to be softened or melted such that the resin is deformed. As described in the specification, this needed heating step requires a significant additional amount of energy.¹

In support for the motivation to combine Holzhauser and Hamanaka, the outstanding Office Action asserts that it would have been obvious to one of ordinary skill in the art at the

¹ Non-limiting support for the above-noted arguments can be found in several places in Applicants' specification. See, for example, page 61, line 17 to page 62, line 1; page 62, line 18 to page 64, line 10; page 70, lines 12-19; and page 83, line 2 to page 85, line 5.

time the invention was made to modify the apparatus of Holzhauser with that of Hamanaka by replacing the turnover drum 50 with the movable branching body 13 and conveyance rollers of Hamanaka in order to reliably select the path of a sheet and effectively prevent jam from occurring when making double sided copies as disclosed by Hamanaka. Applicants respectfully disagree for several reasons.²

The outstanding Office Action states that the proposed modification would have been obvious in order to reliably select the path of a sheet and effectively prevent jam from occurring when making double-sided copies. The record, however, fails to provide the required evidence of a motivation for a person of ordinary skill in the art to perform such modification. While the Hamanaka patent may provide a reason for using the movable branching body 13 and conveyance rollers, the Hamanaka patent fails to suggest why a person of ordinary skill in the art would be motivated to substitute the turnover drum 50 in a device such as the one disclosed in the Holzhauser patent, which already accomplishes its stated objective of making multiple sets of copies of a document made up of a plurality of document sheets arranged in a predetermined order. In particular, the Holzhauser patent does not disclose or identify any jamming problem with its turnover drum or does not suggest to add a movable branching body and the associated complex hardware needed for the proper operation of the branching body, such as the one disclosed in the Hamanaka patent. The Holzhauser and Hamanaka patents, therefore, do not provide the motivation to perform the proposed modification of the Holzhauser device. In other words, an attempt to bring in the isolated teaching of Hamanaka's branching body into the Holzhauser device would amount to improperly picking and choosing features from different references without regard to the

² See MPEP 2143.01 stating "[o]bviousness can only be established by combining or modifying the teaching of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art," (citations omitted). See also MPEP 2144.08 III stating that "[e]xplicit findings on motivation or suggestion to select the claimed invention should also be articulated in order to support a 35 U.S.C. 103 ground of rejection. . . . Conclusory statements of similarity or motivation, without any articulated rational or evidentiary support, do not constitute sufficient factual findings."

teachings of the references as a whole.³ While the required evidence of motivation to combine need not come from the applied references themselves, the evidence must come from *somewhere* within the record. In this case, there is nothing in the record supporting the Office Action's proposed modification of the Holzhauser patent.

Furthermore, it is not clear from the record how Hamanaka's branching body could be incorporated into the Holzhauser device. Under such a modification, the paper feeding trays 41 and 43, and the entire hardware associated with the trays, would have to be removed or relocated. However, as just briefly explained, such modification would require a substantial reconstruction or redesign of the elements of the Holzhauser device, and/or would change its basic principle of operation. There is no clear and convincing evidence in the record that a person of ordinary skill in the art would be motivated to perform such changes and redesign.⁴ Furthermore, it is not clear from the record whether such modification would actually achieve the result asserted in the outstanding Office Action.

In rejecting a claim under 35 U.S.C. § 103(a), the USPTO must support its rejection by "substantial evidence" within the record,⁵ and by "clear and particular" evidence⁶ of a suggestion, teaching, or motivation to combine the teachings of different references. As discussed above, there is no substantial evidence, nor clear and particular evidence, within the

³ See In re Ehrreich 590 F.2d 902, 200 USPQ 504 (CCPA, 1979) (stating that patentability must be addressed "in terms of what would have been obvious to one of ordinary skill in the art at the time the invention was made in view of the sum of all the relevant teachings in the art, **not in view of first one and then another of the isolated teachings in the art,**" and that one "**must consider the entirety of the disclosure made by the references, and avoid combining them indiscriminately.**") (emphasis added)

⁴ See In re Ratti, 270 F.2d 810, 813, 123 USPQ 349, 352 (reversing an obviousness rejection where the "suggested combination of references would require a substantial reconstruction and redesign of the elements shown in as well as a change in the basic principle under which the construction was designed to operate.")

⁵ In re Gartside, 203 F.3d 1305, 53 USPQ2d 1769 (Fed. Cir. 2000) (holding that, consistent with the Administrative Procedure Act at 5 USC 706(e), the CAFC reviews the Board's decisions based on fact findings, such as 35 U.S.C. § 103(a) rejections, using the 'substantial evidence' standard because these decisions are confined to the factual record compiled by the Board.)

⁶ In re Dembiczak, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999) ("We have noted that evidence of a suggestion, teaching, or motivation to combine may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, from the nature of the problem to be solved, although 'the suggestion more often comes from the teachings of the pertinent references.' The range of sources available, however, does not diminish the requirement for actual evidence. That is, the showing must be clear and particular.") (emphasis added).

record of motivation for modifying the Holzhauser's device by incorporating the branching body of Hamanaka.

As applied to the rejection of Claims 26 and 79, as to the motivation to additionally combine Raj and Nukada with Holzhauser and Hamanaka (Hamanaka is used only in conjunction with the rejection of Claim 26), the outstanding Office Action asserts that Raj recognizes dry and liquid developers as art-recognized equivalents and Nukada discloses the various merits of wet electrophotographic printing when compared with dry electrophotographic printing. Applicants respectfully disagree with and submit that such statements are unsubstantiated conclusion based solely on conjecture.

Applicants respectfully submit that Raj has not recognized that dry and liquid developers are equivalents. Raj stated "[a] latent image [may be] developed by contacting it with a dry or liquid marking material having a carrier and toner."⁷ Applicants' specification discloses various examples of dry and wet image developing. However, as hereinabove summarized and further explained in Applicants' specification, there are significant differences between wet and dry electrophotographic printing processes, particularly when considering high-speed double-sided copying as already explained. Applicants respectfully request substantial evidence in support of the conclusion that wet and dry developing techniques are equivalent in the art of high-speed double-sided copying. Assuming *in arguendo* that wet and dry image forming are equivalent, the outstanding objection to Applicants' drawings and the proposition that wet and dry image developing are equivalent seem to be positions taken in the outstanding Office Action that cannot be reconciled with each other.

Applicants respectfully submit that Holzhauser, Hamanaka, Raj, and Nukada, individually or in any combination thereof, do not support a *prima facie* case of obviousness

⁷ Raj, col. 1, lines 16-18.

of the invention recited in Claims 26 and 79. This is so at least because, contrary to the current requirements of patent examining procedures as outlined hereinabove, no substantial, clear, and particular evidence has been provided in support for a motivation to combine the references. Without such motivation and absent improper hindsight reconstruction,⁸ a person of ordinary skill in the art would not be motivated to perform the proposed modification, and Claims 26 and 79 are believed to be non-obvious and patentable over the applied prior art.

Addressing each of the further rejections, each of the further rejections is also traversed by the present response as no teachings in Nakamura, Nakashima, and/or Mochizuki can overcome the above-noted deficiencies of Holzhauser, Hamanaka, Raj, and Nukada. Accordingly, it is respectfully requested that those rejections be withdrawn for similar reasons as discussed above.

Consequently, in light of the above discussion and in view of the present amendment, the present application is believed to be in condition for allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Gregory J. Maier
Registration No. 25,599
Robert T. Pous
Registration No. 29,099
Attorneys of Record

James D. Hamilton
Registration No. 28,421

Customer Number

22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 08/03)
GJM:RTP:MQM:psn

I:\ATTY\MQM\21'S\216468US\AM REV.DOC

⁸ See MPEP 2141, stating, as one of the tenets of patent law applying to 35 USC 103, that "[t]he references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention."